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# "AN INVESTIGATION OF THE BIOGEOCHEMISTRY OF METEORITES WITH EMPHASIS ON THE HYDROCARBON AND SULFUR CONSTITUENTS"



From

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and Space Administration

to

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by

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# INTRODUCTION

1. The Isotopic Abundance and Content of Sulfur

This study is essentially completed. A few inconsistent results have been re-measured. The data indicate isotopic fractionation of the different constituents, but a weighted average composition with a very constant isotopic ratio. This argues against the production of anomalous isotopes by nucleogenetic processes and suggests reactions to have occurred within a meteorite body or mother planet.

This study is now being prepared in manuscript form for publication.

2. Identification of Light Hydrocarbons

Efforts were continued to find a suitable vessel for the grinding of the meteorites. A vessel made of a single tungsten crystal was tried but yielded measurable amounts of light hydrocarbons. The best material tried to date appears to be brass, as this yielded only small amounts of methane as a contaminant. Methods are now being studied to determine if grinding can be performed in a liquid medium to facilitate heat dissipation.

3. Identification of Heavy Hydrocarbons

The organic solvent extracts of a number of meteorites have been broken into various fractions. Initial studies have been undertaken to identify them by ultra violet, infra red and mass spectroscopy as well as gas chromatography. Little new quantitative data exists since the last report.